AGKK5960 09/2006

The British Power Conversion Company

HP-100 Series

7 kVA

(HP-107XA)

UNINTERRUPTIBLE POWER SUPPLY

USER MANUAL

IMPORTANT NOTICES

1 . Read instructions carefully before operating the UPS
2 . All warnings in the manual should be adhered to.
3 . All operating instructions should be followed.
4 . The unit should be supplied by a grounded outlet.
DO NOT operate the unit without ground source .
5 . Power cord of the UPS should be routed carefully so that they are not to be walked on.

WARNING

1 . DO NOT OPEN THE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE.
2 . DO NOT INSERT ANY OBJECT INTO VENTILATION HOLES OR OTHER OPENINGS.
3 . INTENDED FOR INSTALLATION IN A PROTECTED ENVIRONMENT.

V. LIMITED WARRANTY

The UPS is warranted against all defects in workmanship and materials under normal use for a period of one (1) year from the date of shipment to the original user. The conditions of this warranty and the extent of responsability of ( ) corporation under this warranty are as follows.

1 . The warranty does not apply if the product has been subjected to physical abuse, improper installation, unauthorized service or modification.

2 . The sole responsability of ( ) corporation under this warranty shall be limited to the repair or replacement of the product, at the sole discretion of ( ) corporation.

3 . If it becomes necessary to send a defecting unit to ( ) corporation, the product should be shipped in its original carton or in suitable equivalent, and with shipping charges prepaid. ( ) corporation will not assume any responsibility for any loss damage incurred in shipping.

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FAULT 3 The temperature on the heatsink inside the UPS cabinet has exceeded 90 °C three times in the last 30 minutes. In such a case , the UPS should be turned-off and on again to resume normal operation.

FAULT 4 "Output Failure" alarm has occurred 4 times in the last 10minutes. Please call for service.

FAULT 5 Inverter is not generating AC output since the battery voltage is below the lower limit . Turn-off the UPS and on again.

FAULT 6 "Possible Battery Failure" Please call service for checking the batteries.

FAULT 7 Rectifier fault. Please call service for checking the UPS.

FAULT 8 Line voltage out of tolerance.

OVERLOAD : You have a load more than 100% at the UPS output.
OVER TEMPERATURE : UPS inside temperature is higher than the limits (Please call service)
OUTPUT HIGH : UPS output voltage is higher than the limits. (Please call service)
OUTPUT LOW : UPS output voltage is lower than the limits. (Please call service)
IGBT FAILURE : IGBT power transistor fault of the inverter section. (Please call service)
WAITING SHUTDOWN : Internal timer is active for shutdown.
UPS SHUTDOWN : UPS is in the shutdown mode. There is no voltage at the UPS output.
WAITING RESTART : Internal timer is active for restart.
CANCEL SHUTDOWN : Disable shutdown timer.

PUSH BUTTONS

1- Sound on-off button : When you push this button it will disable the audible alarm on the UPS. If you want to enable the sound alarm again you have to push the DISPLAY SELECT button for 2 sec.

2- Display select button : Each time you push this button, you can see one of the parameters of the FIRST (up) MESSAGE LINE .

4 .4 Error Codes

FAULT 1 "BYPASS FAILURE" An AC voltage exists at the output of the UPS, although the inverter is not in operation . In such a case , disconnect all the critical equipment from the UPS and turn it off and on again. If it doesn't start operating , please call for service.

FAULT 2 "INVERTER FAILURE" Inverter can not generate AC output. Turn-off the UPS and then turn it on again . If it doesn't start , please call for service.

I. INTRODUCTION

1 .1 System Description

HP-100 Series Uninterruptible Power Supplies are advanced true On-Line Sinewave UPS with static transfer switch which provide reliable, regulated, transient-free AC power to sensitive equipment, ranging from computers, telecommunication systems to computerized instruments.

Because the UPS is a true On-Line system, conditioned power is provided continuously to the connected equipments. Unlike standby power systems, the UPS is constantly regulating and filtering the output power. When incoming power is interrupted, the UPS protects the computers instantaneously without any transfer time.

The HP-100 Series has high nonlinear load capability (i.e. Crest Ratio 3:1) and this is suitable for powering special loads such as switching power supplies or highly capacitive inputs.

The system's static transfer switch (S.T.S) provides by-pass power as its standby source. During an overload condition, the S.T.S will switch the customer's load over to the bypass line with no interruption.The S.T.S will transfer back to the inverter automatically when the overload condition has been cleared. If the inverter fails internally, the unit switches to bypass within milliseconds.

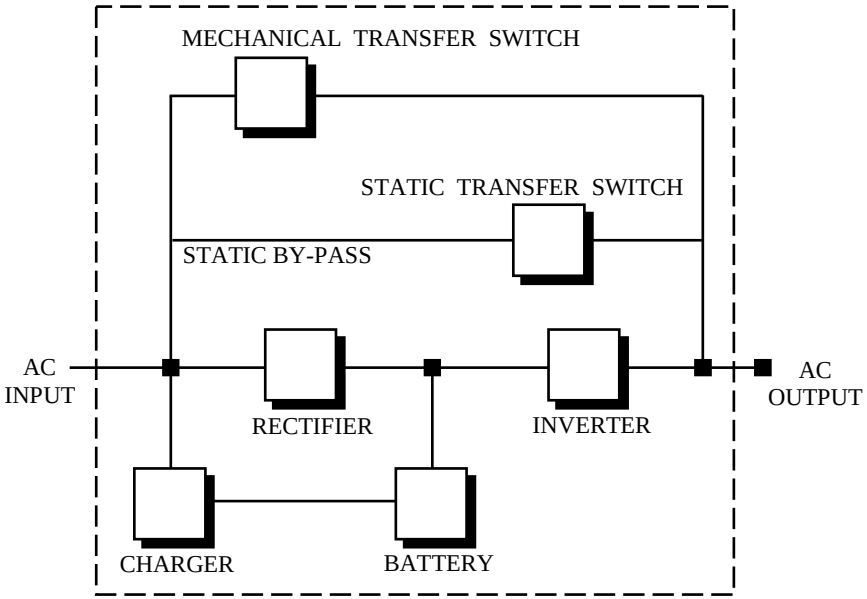

Figure 1.1 UPS Blok Diagram

To choose the HP-100 Series as your equipment protector was a wise investment.
It includes many features to protect your critical equipments:

Full Protection
- Built-in battery to protect from power outage
- S.T.S to protect when UPS fails
- On line operation to condition output continuously
- Sinewave output waveform

High Nonlinear Load Capacity
- Special for Computers

Easy operation and installation overload protectıon for UPS.

4.3 LCD DISPLAY

This panel shows the systems operation such as input and output Voltages, Frequency, load status etc.

FIRST MESSAGE LINE

LOAD : The percentage of the load connected to the UPS output
OUTPUT : UPS output Voltage
BATTERY : UPS battery Voltage
LINE : Line Voltage at the UPS input.
LANG. ENGLISH : Display language
FREQ : UPS output frequency.
SOUND ON : Audible alarm is active.
SOUND OFF : Audible alarm is not active.
SYNC:OK : UPS and LINE synchronization status.
COMM:OK : Communication active.
BATT.USED : It shows battery operation time (the time passed after the last line failure alarm)
LOG. EVENT : Your UPS records and keeps all its faults and alarms up to 64 events in its memory for future monitoring. Events are recorded in the order of occurrence. The upper line on LCD indicates the recorded event number , "000" being the last event. The lover line shows the name of the event. While monitoring the recorded events, you can return to event number "000" by pressing the "sound off" button for a relatively long time.

SECOND MESSAGE LINE

VERSION XXXX : Micro controller software version of the UPS.
ON LINE MODE : UPS operating mode.
LINE FAILURE : You have no AC input at the UPS input .
BATTERY TEST : Performing battery test.
BAT.AUTONOMY END : Battery autonomy has finished.
BATTERY LOW : UPS battery voltage is below the lower limit.
BATTERY HIGH : UPS Battery Voltage is above the upper limit. (Please call service)
BATTERY FAILURE : Battery test aborted. Battery test performed whilst battery not perfectly charged or battery cells damaged. (Please call service)

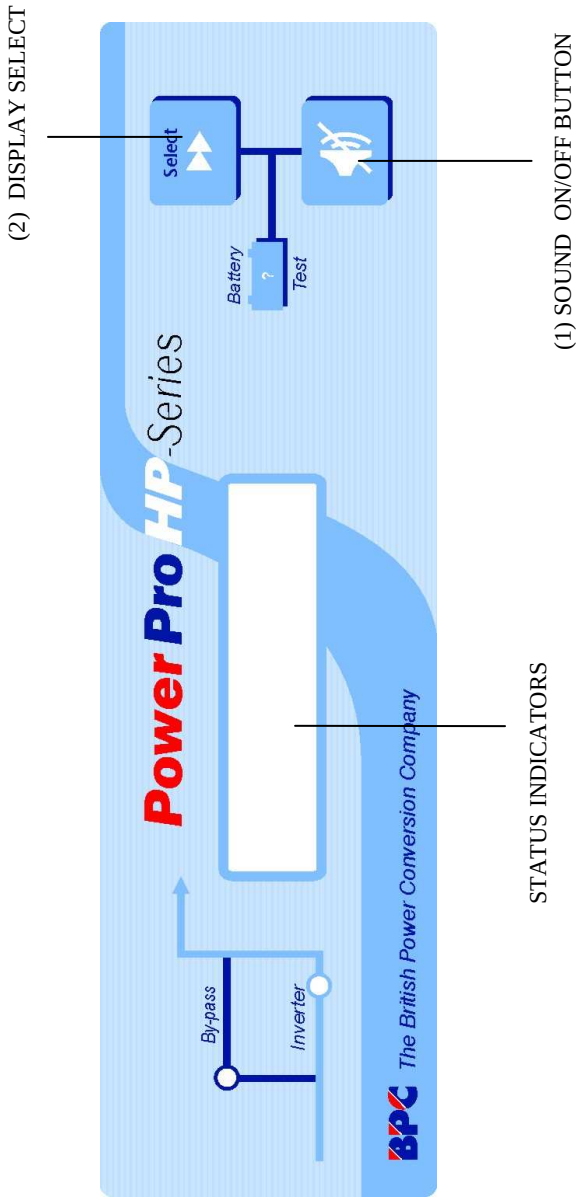

Figure 2 Front Panel

1.2 Technical Specifications

	HP-107
Power (pf 0.65)	7 kVA 4550W
INPUT	
Voltage	220/230Vac 1 Ph+N ±15%
Frequency	50 Hz. ±5%
Current	42 A
OUTPUT	
Voltage	220/230 Vac
Voltage tolerance	± 1%
Frequency	50 Hz.
Frequency tolerance	Free running ± 0,2 % Line synchronized ± 1 Hz.
Efficiency (%100 Load)	85-87%
Crest factor	3:1
Overload capacity	100%-125% load 10 min 125%-150% load 1 min >150% direct by-pass
Batteries	18 x 12 V
Floating charge voltage	243 Vdc
End of discharge voltage	180 Vdc
Operating temp.	0-40 °C

1.3 Physical Specifications

Operating Temperature	:	0 ^{0}C - 40 ^{0}C
Humidity	:	90%
Altitude	:	max. 1000 meter
Dimensions	:	(HxWxD) 590x265x685 mm

Figure 1.2

IV. CUSTOMER SERVICE

WARNING

There are no customer serviceable components inside. **DO NOT** open the cover or attempt to service the unit. High voltage may remain when the unit is shut down. Unauthorized service will void the warranty and could cause serious injury.

4 .1 Maintenance

The unit is designed for easy maintenance. Very little customer maintenance is required. The following will help to ensure trouble -free operation for several years:

1 . Vacuum the dust from the ventilation intake on the front panel.
2 . Wipe the cover with a dump cloth.
3 . Periodically uplug the power cord of the UPS from the wall outlet to test the batteries condition. (only for the units without Automatic Battery testing)

CAUTION

It is recommended to test the battery discharging capability only after the software in use has been saved and all files have been closed.

4 .2 Troubleshooting

Due to the unique design, the unit can be serviced only by authorized people. In case of the UPS fails to operate properly turn off the unit first.Then review the following check list. Be prepared to answer the questions before calling the service.

1. Did you follow the operation procedure? Did it happen on installation?
2. Is the input fuse, battery fuse and on-off switch PK1 on the rear panel turned to position "1" ?
3. Is the utility power of the wall outlet correct?
4. Did a power failure occur just after or before the malfunction noted on the UPS?
5. What is the indicators status ?
6. Were any changes made recently to the unit or the critical equipment connected to the unit ?
7. Did an overload condition occur? Remove load from the unit and restart it.

CAUTION

A . Follow the application sofware in use as well as the computer manufacturer's instructions for saving data and turning off the computer.The remaining of battery discharge will be enough for you to complete the job. All computer operations should be terminated as soon as possible.

B . After a blackout, the input fuse and battery fuse should be kept in "**0**" position for at least 10 hours to ensure the batteries are fully recharged.

II. SETTING UP THE UPS

2 .1 Unpacking

The UPS is packed and enclosed in a structural cardboard carton to protect it from danger.

1. Inspect for damage that may have occurred during the shipment If any damage is noted, call the shipper immediately and retain the shipping carton and the UPS.
2. Carefully open the carton and take the UPS out.
3. Retain the carton and packing material for future use.

2 .2 Location Selection

The UPS is designed to be installed in a protected environment. The following conditions should be prohibited.

1. Blocking the airflow intake and outlet. (It is recomended to retain 10 cm.(4 inch) between the rear side and the wall.)
2. Environment temperature and humidity out of specification.
3. Location subject to excessive moisture, dust and corrosion.
4. Location exposed to heat source or direct sunlight.

2 .3 Installation

It is recomended that the UPS should be connected to the line voltage protected by a circuit breaker.

1. Before connecting AC and/or DC power to the UPS make sure that the On-Off Switch PK1, input fuse and battery fuse on the rear panel are in the "**0**" position "OFF".
2. Connect the AC and DC input power to the UPS according to the label on the rear panel. Perform the load connections according to the same label too..
3. Check if the connections are correct. (battery polarity,AC voltage ratings etc.)

WARNING : **DO NOT DEFEAT GROUND CONNECTIONS**

2 .4 Start-Up

1. Turn on the input fuse and battery fuse on the rear panel. (In this case , there is line voltage at the output and battery charger board is active)

2. Turn the On-Off Switch PK1 on the rear panel to "**1**" position. In a few seconds the cooling fan will start to operate, then the "**By-pass**" indicator will be off and the green LED indicator "**Inverter**" will turn on and will start to give the inverter power to the output.

3. Disconnect the input power .The "**LINE FAILURE**" indicator will be on and audible alarm will sound intermittently. Now the output receptacles are supplied from the battery source.

4. Connect the power again and see that "**LINE FAILURE**" alarm is off and the green led indicator "inverter" turn on.

5. Now your UPS is ready to operate. Plug in the critical loads to the output receptacles of the unit.

NOTE
If any condition is different from the above situation, call our local service representative for assistance.

CAUTION
After initial start-up, keep power continuously to the unit for at least 12 hours to ensure that the batteries are fully charged. During charging batteries, the inverter can be shut down by turning the On-Off Switch PK1 to "0" position.
In this case the main switch should be kept in "on" position and it must be kept in mind that there is line voltage at the output.

III. OPERATION PROCEDURE

3 .1 Turn On procedure

1 . Turn on the input fuse and battery fuse on the rear panel to "1" position. ***(There is line voltage at the output.)***
2 . Turn on the On-Off Switch PK1 on the rear panel to the "**1**" position. Turn on the power switches on your critical load after the "**Inverter**" indicator (green light) is turned on. *(There is inverter voltage at the output.)*

3 .2 Turn Off procedure

1 . Turn off all the power switches on your critical equipments that are connected to the UPS .
2 . Turn off the On-Off switch PK1, input fuse and battey fuse to "0" position.

CAUTION
A- For daily TURN ON / TURN OFF operation , it is recommended to keep the input fuse and battery fuse at "1" position to ensure proper battery operation.
B- If the input fuse and battery fuse is in "**1**" position the line power will be supplied to output receptacles directly. DO NOT insert objects other than equipment power cords into outlets.

3 .3 When utility power is interrupted

In case the utility power is interrupted, the UPS converts the built-in battery source to output terminals immediately to protect your critical loads from loss of data or damage. Battery back-up time is more than 4 minutes for full load and can be extended by removing non-critical loads. After an utility power blackout, the audible alarm and "LINE FAILURE " indicator on LCD panel will start operating .1 minute after the power is interrupted , and you will see the message "BAT.USED :001min"on the LCD panel. This will show you for how long the batteries were used since the power was interrupted. When the "Battery Low" alarm appears , you have to shut down all your loads immediately.